



DAF Executive Summary

Challenge

The nationwide deployment of Health Information Technology systems (Electronic Health Records, Data Warehouses, etc.) has created both opportunities and challenges in accessing patient data. While Health IT systems provide many access paths through their predefined interactions between a user and the system, they offer limited support in directly querying data, Application Programming Interfaces (APIs), or for other services to access data as needed.

To address these challenges and to expand on opportunities, the Office of the National Coordinator for Health Information Technology (ONC) launched the [Data Access Framework \(DAF\) Initiative](#) with the following goals:

- Reduce barriers in extracting granular data and documents from clinical data sources
- Simplify data mapping challenges
- Enable researchers to access data extracted from clinical data sources using standard mechanisms
- Enable development of third party applications using the data access APIs to add value for clinical and research activities
- Enable access to both patient level and population level data using modular, substitutable standards controlled by appropriate privacy and security controls

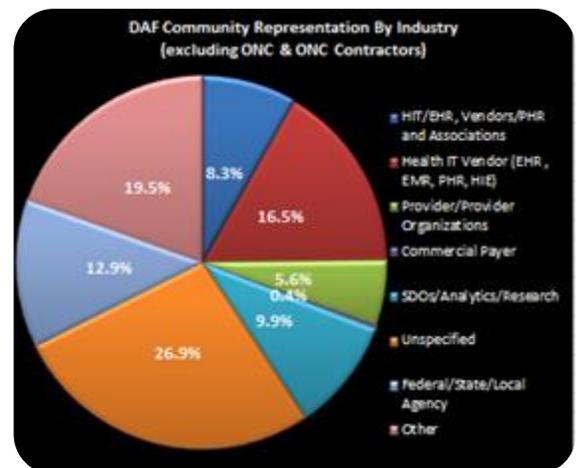
Methodology

To achieve the goals above, the DAF initiative used a phased approach that included the following:

- **Local data access** via *intra organization query* (phase 1)
- **Targeted data access** via *inter organization query* (phase 2)
- **Data access for researchers** (phase 3) to access multiple patients' data from *multiple organizations* in the context of a Learning Health System

The DAF initiative formed a community of participants, representing a wide array of industry stakeholders (*see figure to right*) to create standardized data access to individual patient encounter documentation and discrete data elements. The work of the DAF team and its community members ultimately led to the development of three implementation guides (IG), which include the following:

1. [Integrating the Healthcare Enterprise \(IHE\) Data Access Framework \(DAF\) Document Metadata Based Access Implementation Guide \(IG\)](#): A US National Extension to provide requirements and guidance on accessing clinical documents created during clinical workflows using IHE profiles.



Data Access Framework (DAF) Initiative

Office of the National Coordinator for Health Information Technology (ONC)



2. **Health Level Seven (HL7) FHIR® US Core Implementation Guide (IG) Release 1 (formerly known as DAF Core):** An IG that specifies a set of APIs to access patient level data both within an organization and from a Targeted external organization
3. **Health Level Seven (HL7) FHIR® DAF for Research Implementation Guide (IG) Release 1:** An IG built on top of the US-Core FHIR IG to enable researchers to access data from multiple organizations within a research network such as the National Patient-Centered Clinical Research Network (PCORnet)

Pilots and Lessons Learned

In order to provide experience with actual implementations, the DAF IGs were tested or piloted by multiple organizations. The Argonaut Project implemented the FHIR® US Core IG (addressing Fast Healthcare Interoperability Resources—FHIR API based data element access in DAF phase 1 and 2) while several PCORnet organizations implemented the DAF for Research IG (phase 3). Lessons learned included but were not limited to the following:

- It is necessary to work closely and collaboratively with partnering Standards Development Organizations, vendor developers and implementers to create standards and facilitate adoption of those standards in the real world, as that is a lengthy, time-consuming process requiring industry consensus.
- Wider adoption of the IGs requires a trust framework implementing industry standard security and privacy mechanisms and policies.
- The FHIR based IGs (US-Core and DAF-Research) depend heavily on the native adoption of FHIR APIs by health IT system vendors to reach full potential for data access.
- DAF for Research requires further development to support patient level query and response; however, it was seamlessly integrated into existing PCORnet environments as it was an overlay using standards and provided significant value in data source on-boarding and interoperability within and across networks.

Conclusion

Through the development of the aforementioned implementation guides, DAF successfully created a modular and substitutable framework, enabling local and targeted data access using the various data query methods (document based—The IHE DAF Document Metadata Based Access IG; data element based—The US Core IG; quality measure based; etc.). This enables providers to more readily assemble a patient’s complete information to better provide coordinated care in a timely manner and without extra cost.

Additionally, the development of the DAF for Research IG allows researchers to access multiple patients’ data using standards for data extraction, query composition, query distribution and result aggregation using APIs and services. This allows the researchers to derive value from complex data using multiple sources without having to rely on existing access paths. Once established, these workflows can be automated to refresh the data at regular intervals, saving researcher’s invaluable time. This will advance research efforts to develop an interoperable data network infrastructure maximizing efficiency, advancing research opportunities, and improving future health policies as part of a Learning Health System.

To learn more about the DAF Initiative (i.e. project charter, milestones, use cases, implementations specifications, SDO efforts, pilot activity, DAF initiative lessons learned and recommendations) please read the complete DAF project summary located here: <https://oncprojectracking.healthit.gov/wiki/display/TechLabSC/DAF+Home>